REMARKS

Claim Rejections

Claims 14-30 are pending in the present application. Of these claims, Claims 14-17, 20, and 21 have been rejected under 35 U.S.C. § 102(b) as anticipated by Japanese '438 publication. Claims 14-17 and 19-21 have been rejected under 35 U.S.C. § 102(b) as anticipated by Podmore, U.S. Patent No. 2,983,454. Also, Claims 14-18 and 20-24 have been rejected under 35 U.S.C. § 102(b) as anticipated by the Japanese '754 publication. In addition, we understand that Claims 25-29 have been rejected under 35 U.S.C. § 103(a) over the Japanese '754 publication in view of Cappola US patent No. 6,036,126, even though the Office Action dos not specifically so state. Lastly, Claim 30 has been rejected under 35 U.S.C. § 103(a) over the Japanese '784 publication in view of the Japanese '052 publication.

To address the foregoing rejections, Claim 14 has been amended and Claim 15 canceled. In addition, Claim 22 has been amended, with Claims 24 and 25 canceled.

Present Invention as Defined by the Amended Claims

The present invention primarily relates to a particulate matter vibro-fluidizing device and not to a grinding apparatus.

Amended Claim 14 is directed to control vibro-fluidizational behavior of a particulate matter in a particulate matter layer and to provide circulation in the particulate matter layer by a cooperative vibrating action occurring between said different types of vibrating bodies comprising a container and a vibrating medium installed within the container. Primarily, the vibrating medium is not a grinding or crushing medium. The vibrating medium cooperates with the container (another vibrating body) to facilitate the circulation control where the particulate matter repeatedly appears at the surface of the particulate matter layer from the bottom of the container. The vibrating medium vibrates, but does not move or circulate in the container.

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Amended Claim 22 specifies amplifying means comprising a plate provided inside said container spaced away from the bottom of the container and floating bodies provided between said plate and the container so as to collide with said plate such that the particulate matter placed on said plate is to be vibration-treated by a cooperative vibration action of vibration due to the amplifying means and vibration of the container. The floating bodies are provided under the plate on which the particulate matter is placed. The floating bodies constitute amplifying means and do not function as grinding means.

Citations

The Japanese '438 publication relates to an electromagnetic type crushing apparatus having a mixing container 1 for a sample to be crushed. A plate 4 for mounting the container 1 is supported by springs 6 and is vibrated by a plurality of magnets 10 positioned under the plate 4. The sample 11 and a crushing ball 8 are placed inside the container 1. The purpose of the crushing ball 8 is to crush the sample 11. Unlike the present invention as now specified by Claim 14 as amended, the '438 publication does not relate to an apparatus in which vibro-fluidizational behavior of a particulate matter in a particulate matter layer is controlled by a cooperative vibrating action occurring between said different types of vibrating bodies so as to generate circulation in the particulate matter layer. It is clear from the Figures 1 and 3 that the '438 publication fails to disclose a particulate matter layer. Also, circulation of the particulate matter is not facilitated by the large crushing ball 8.

Podmore relates to a grinding mill and a method for grinding material in which a number of balls 20 are disclosed as a grinding media. Unlike the present invention as now defined by Claim 14 as amended, Podmore does not relate to an apparatus in which vibro-fluidizational behavior of a particulate matter in a particulate matter layer is controlled by a cooperative vibrating action occurring between the different types of vibrating bodies so as to generate

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circulation in the particulate matter layer. According to Podmore, the balls 20 circulate together with the material to be ground in the container 10 as the balls 20 grind the material (Claims 1 and 4). The grinding medium (the balls 20) is not a vibrating medium of the present invention and circulation of the particulate matter in the particulate matter layer cannot be achieved by the grinding medium (the balls 20) that moves together with the material.

The Japanese '754 publication relates to a vibrating apparatus which comprise a base 1, a container 3, a plurality of supporting springs 2 interposed between the base 1 and the container 3, a vibration generator 6 and a plate 11 for receiving particulate matter. The plate 11 is mounted via springs 13, 14 such that the plate 11 can be oscillated inside the container. Due to resonance between the container 3 and the plate 11, the amplitude by the plate 11 can be increased so as to promote the crushing operation. In Figure 1, part number 19 denotes an intake inlet for introducing hot air, part number 20 denotes an inlet port for introducing a particulate material, and reference 22 denotes a discharge port. As shown in Figure 3, plate 11 is a porous plate having small holes 16 therein. The hot air is introduced to the particulate matter above the plate 11 through the holes 16. Unlike the present invention as now defined by claim 14 as amended, the '754 publication does not relate to an apparatus in which vibro-fluidizational behavior of a particulate matter in a particulate matter layer is controlled by a cooperative vibrating action occurring between said different types of vibrating bodies so as to generate circulation in the particulate matter layer. Due to the introduction of air into the container 3, behavior of particulate matter cannot be controlled by vibration generator 6. The publication also fails to disclose amplifying means as defined in amended Claim 22.

Cappola discloses objects 6 which are placed on the power loaded sieves 4. The objects 6 constitutes a grinding medium and mill or facilitates segregation of powders either into the next screen or final pan. The objects 6 of Cappola are not amplifying means for amplifying

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vibrations of the container and are inherently different than the floating body of the amended Claim 22 of the present invention. In addition, the objects 6 are placed on the power loaded sieve, while the floating body of amended Claim 22 is placed under the plate and collides with the lower surface of the plate.

Conclusion

For the foregoing reasons, applicant submits that independent Claims 14 and 22 are now deemed allowable. In addition, Claims 16-21, each depending from Claim 14, also should now be found allowable. Moreover, sub-Claims 26-30, each depending from Claim 22, also should now be found allowable.

If the Examiner has any questions concerning the foregoing, he is requested to contact the undersigned at (206) 695-1705.

Respectfully submitted,

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Date: November 10, 2004 Hilda J. deGraff

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